

Cayuga Lake Modeling Project in Support of a Phosphorus TMDL

Public Meeting, Ithaca
July 17, 2014

Jeff Myers
Bureau of Water
Assessment Management
NYS DEC



The Cayuga Lake TMDL Process

- Collection of Data *Largely Complete*
- Development of Model *Underway*
- Use of Model to Develop TMDL
- Stakeholder Input to TMDL
- DEC Proposes TMDL
(or alternative to meet water quality standards)
- EPA Approves TMDL
- TMDL Implementation



Modeling Study/TMDL Schedule of Activities

- 2013 – Monitoring/Data Collection
- 2014/15 – Model Development
- 2015/16 – Model Evaluation
- 2016/17 – TMDL Development
- May 2017 – Draft TMDL (target date)
- Sep 2017 – Final TMDL (target date)



Goal of Cayuga Lake Water Quality Modeling Project

The Goal

A model to provide better understanding of Cayuga Lake water quality under varying conditions in order to develop an effective TMDL Plan.

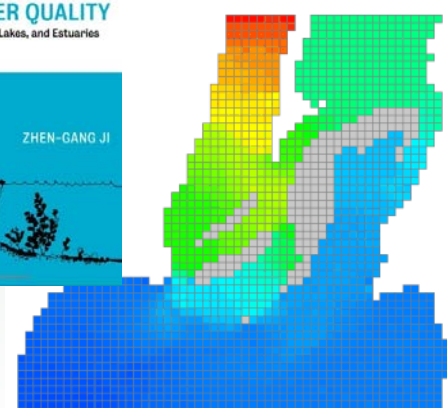
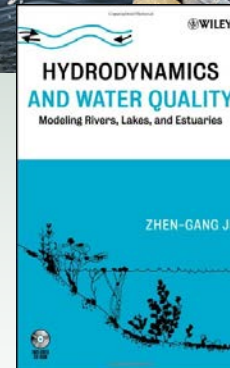
Realistic Expectations

Project expected to answer some of the questions...
will the project answer them all?



Cayuga Lake Modeling Project *Transitions...*

from
Data
Collection
to
Model
Development



Cayuga Lake Modeling Project *Transitions...*

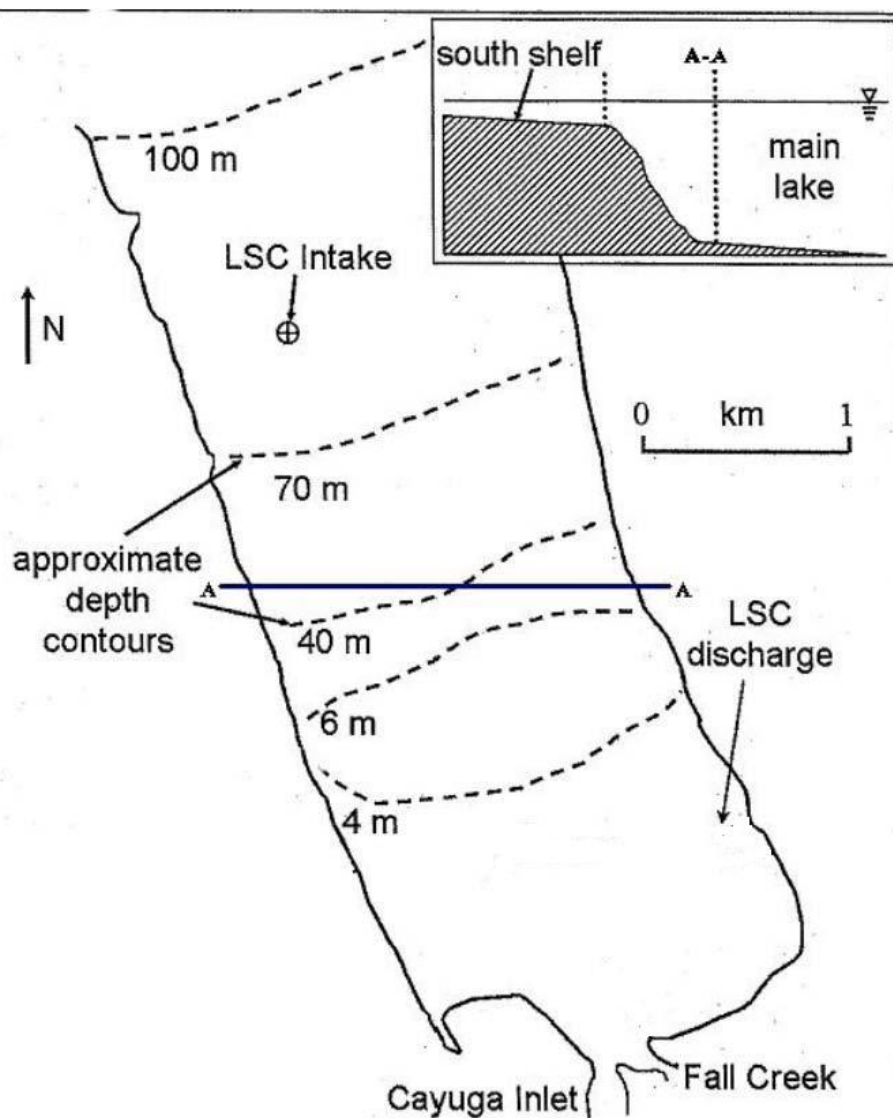
from
Research
Study
to
Regulatory
Action



Total Maximum Daily Load

- TMDLs are Load Allocation Plans used to set discharge limits for a specific pollutant into a specific waterbody.
- TMDLs are typical for more complex and multiple discharger situations.





Complexities

- One Lake, Multiple Segs
- Multiple Discharges
 - Ithaca Area WWTP
 - Cayuga Hgts WWTP
 - Cornell LSC
- Tributary Loads
- In-Lake Recycling
- Lake Dynamics
- Changing Lake WQ
- Narrative Phos Standard
- Other
 - Invasives
 - Climate Change



What Sampling is Being Done?

Lake Monitoring

- Entire Lake
- Phosphorus, Turbidity/Clarity, Chlorophyll

Watershed Monitoring

- Input from Tribs (Fall, 6-Mile/Inlet, Salmon)
- Focus on Storm/Snowmelt Events
- Phosphorus, Sediment

Wastewater Treatment Plant, LCS Discharges

Other (Mussels, Paleolimnology)



Recipe for a Successful TMDL

- Good Understanding of the Dynamics
- Focus on the Right Cause, Pollutant
- Identification/Quantification of Sources
- Set the Right Target for Reduction
- Effective Implementation

...and It Takes Time



Project Outreach

- Occasional Public Meetings

Scheduled around Key Project Milestones

- Tompkins Co WRC/Monitoring Partnership

Regular (Monthly) Communication, Technical

- Technical Advisory Committee (TAC)

Track/Comment on Monitoring/Model Progress

- Public Input to TMDL Development Process

Separate Component to come later



Technical Advisory Committee

Provide independent expertise/advice on scientific and technical aspects associated with lake water quality issues and the development of the TMDL for phosphorus in Cayuga Lake.



Technical Advisory Committee

- Steve Gladding, NYSDEC (replaces Jay Bloomfield)
- John Halfman, Hobart & Wm Smith College
- Rosella O'Connor, USEPA
- Aaron Ristow, Tompkins County SWCD
- Richard Yager, USGS
- Roxanne Johnson, City of Ithaca/Wshd Coord



Model Evaluation Group

From the TAC Charter...

- NYSDEC, in consultation with the TAC, may form committees, panels, or workgroups for any purpose consistent with this charter...
- USEPA will establish a Model Evaluation Group (MEG) to provide the TAC with additional model review capabilities...



Model Evaluation Group

- **Dr Scott Wells, Portland State Univ**
Expertise with hydrodynamic and WQ modeling
- **Dr Stuart Rounds, US Geological Survey**
Expertise in watershed/land use modeling
- **Dr Devendra Amatya, US Forest Service**
Expertise in nutrient/TMDL modeling
- **Dr Brian Cummings, Queens Univ, Toronto**
Expertise in aquatic ecosystem influences, sediment



Project Outreach

Jun 2013 – Public Mtg

Sep 2013 – TAC Mtg

Oct 2013 – Cayuga Ag Mtg

Dec 2013 – Public Mtg

Jan 2014 – TAC/Public Mtg

Apr 2014 – Cayuga Wshd Net

May 2014 – TAC Mtg

Jul 2014 – Public Mtg

And DEC
participation on
Monthly Conf Calls
of the
Tompkins County
WRC Monitoring
Partnership



Questions?



Could the Designated Uses (Classification) Be Changed?

- First, Develop Model to Use in Development of a Strategy
- Second, Develop Most Effective Load Reduction Strategy (w/ Stakeholder Input)
- Third, Evaluate Costs to Implement TMDL Reductions
- Clean Water Act Allows for:
 - Reclass (DEC Does Not Typically Do)
 - UAA

